

REMARKS

This application has been carefully studied and amended in view of the Office Action dated December 28, 2007. Reconsideration of that action is requested in view of the following.

The Abstract has been amended to replace “means of” with “through use”.

The claims have been carefully reviewed and amended, particularly in view of the rejection of claims 1-6 under 35 USC 112. In that regard, claims 7-9 have been added which are dependent on claim 6 and relate to the three alternatives previously recited in, but now canceled from claim 6. Similarly, claim 10 has been added which is dependent on claim 2 and is directed to the alternative previously recited in and now canceled from claim 2. Claims 11-13 have been added which are dependent on claim 5 and also now recite the three alternatives which were previously recited in and are now canceled from claim 5. Claim 3 has been canceled and rewritten as claim 14. Claim 4 has been canceled and rewritten as claim 15. Claim 16 has been added which is similar to claim 6, but is dependent on claim 15. Claims 17-19 have been added which are dependent on claim 15 and recite the three alternatives which are also recited in claims 7-9 and 11-13.

In view of the amendments noted above claims 1-2 and 5-19 should comply with 35 USC 112. The claims, for example, now recite positive process steps. As noted above, the “preferable” alternatives previously recited in claims 2 and 5-6 have now been deleted from those claims and have been presented in separate dependent claims.

The claims have been reviewed and amended to take into account antecedent support for the language of those claims.

Claim 1 has been amended to define the ionic liquid as being “ionic liquid salts which are liquid at temperatures below 200⁰C”. Support is found in the specification at page 2, lines 21 and 27.

In the Office Action it was questioned whether the “bottom stream” of claims 3-4 is referring to “a high-boiling bottom product” of claim 1. These are not the same. The high-boiling product which is taken off as a side stream in vaporized form can not contain any ionic liquid since ionic liquids do not possess any vapor pressure. Claims 3-4 have been canceled and rewritten as claims 14-15 which should now avoid any possible indefiniteness of those claims.

Reconsideration is respectfully requested of the rejection of claim 1 on the ground of obviousness-type double patenting. As recognized by the Examiner claim 1 is not the same as the noted claims in the rejection. Moreover, the corresponding claims in this application and in the two co-pending applications have not been allowed. If the Examiner still maintains this rejection a Terminal Disclaimer will be filed.

It is respectfully submitted that parent claim 1 and its dependent claims are patentable over WO '718 in view of EP '478 or U.S. 4,623,432. The present invention relates to a process for separating azeotropic mixtures, which differs from the process taught by WO '718 in that a high-boiling bottom product is taken off from the column in vapor form via a side offtake. Through this measure the ionic liquid can be recovered in high purity as a bottom stream which can be re-circulated to the column (if appropriate after further purification).

EP '458 teaches an extractive rectification using water as an entrainer. The water is recycled back from the bottom stream of the rectification column after evaporation of volatile components of the bottom stream. However, EP '458 does not teach taking off a high-boiling bottom product from the column in vapor form via a side offtake. Thus, a person skilled in the art would not have been motivated from EP '458 to optimize the process according to WO '718 by taking this measure.

U.S. 4,623,432 teaches a fractional distillation method, wherein water is used as an entrainer and wherein acetic acid is taken off from the column in vapor form via a side offtake. However, in this process the entrainer is collected in form of the top liquid product, which is permitted to settle into two immiscible layers and subsequently separated off. Thus, the bottom product does not contain the entrainer. Furthermore, the acetic acid has a boiling-point of 180°C

which is obviously higher than the boiling-point of the entrainer, i.e. water. In contrast, the high-boiling bottom product according to the present invention has a lower boiling-point than the entrainer. Therefore, a person skilled in the art would not have considered the teachings of Ali to optimize the process according to WO '718. Thus, the present invention is based on an inventive step.

In view of the above remarks and amendments this application should be passed to issue.

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